

ES ENGINEERING-SCIENCE

600 BANCROFT WAY • BERKELEY, CALIFORNIA 94710 • 415/548-7970

23 April 1987
Ref: 5900.222

Bay Area Rapid Transit District
1330 Broadway, Suite 1800
P. O. Box 12688
Oakland, California 94604-2688

Attention: Ms. Desha Robin Hill

Subject: Preliminary Environmental Assessment of 349 Cypress Street
Property, Oakland, California.

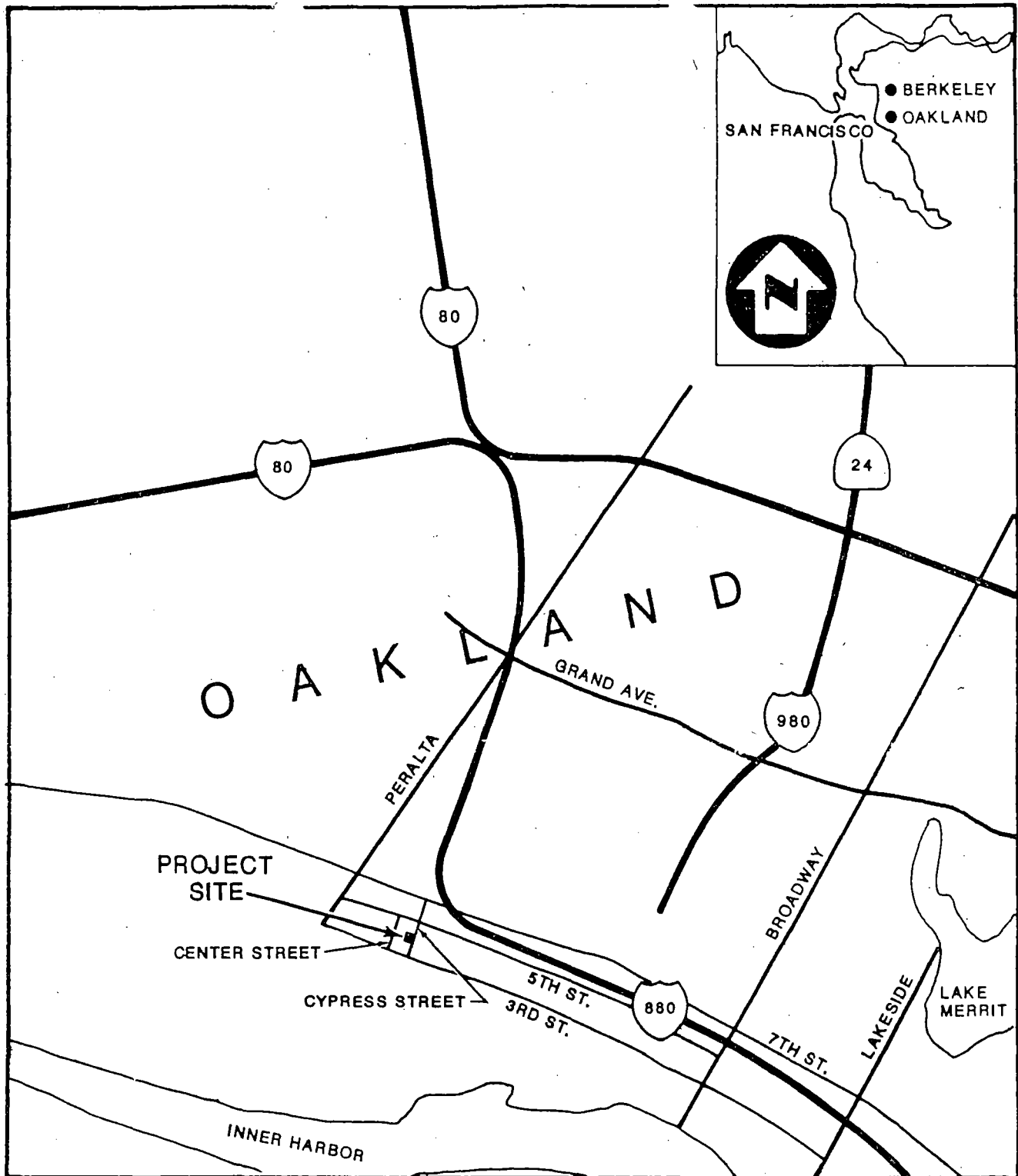
INTRODUCTION

This report describes the implementation of a preliminary site characterization plan submitted by Engineering-Science (ES) to the Bay Area Rapid Transit District (BART) in a letter proposal dated 10 April 1987. Figures 1 and 2 show the location of the focus of this plan, the 349 Cypress Street property, Oakland, California. The property is bounded on the south by facilities of Amco Chemical Company, on the north by California Soda Works, on the west by various residential properties, and to the east by Cypress Street (Figure 2). Currently, the property is being used as an automobile dismantling/storage facility. This facility is operated under the name of "Alexander's Ragtime Auto Wreckers" and has a business address of 351 Cypress Street, Oakland, California. Bay Area Rapid Transit District is considering purchasing the property and would like to assess potential soil contamination associated with past site use(s).

OBJECTIVES AND SCOPE OF WORK

The objective of this investigation is to collect soil data from various locations on the property in order to determine the potential existence of contamination in the surface soil zone resulting from historical site use(s). In order to complete this objective, a work plan integrating the following elements was initiated: 1) research into historical use(s) of the property; 2) inspection of the property for evidence of potential surface contamination; 3) collection of soil samples from areas displaying evidence of contamination; 4) analysis of these samples for petroleum hydrocarbons, volatile organic compounds, and selected heavy metals; and 5) evaluation of the analytical results according to California State regulatory agency guidelines.

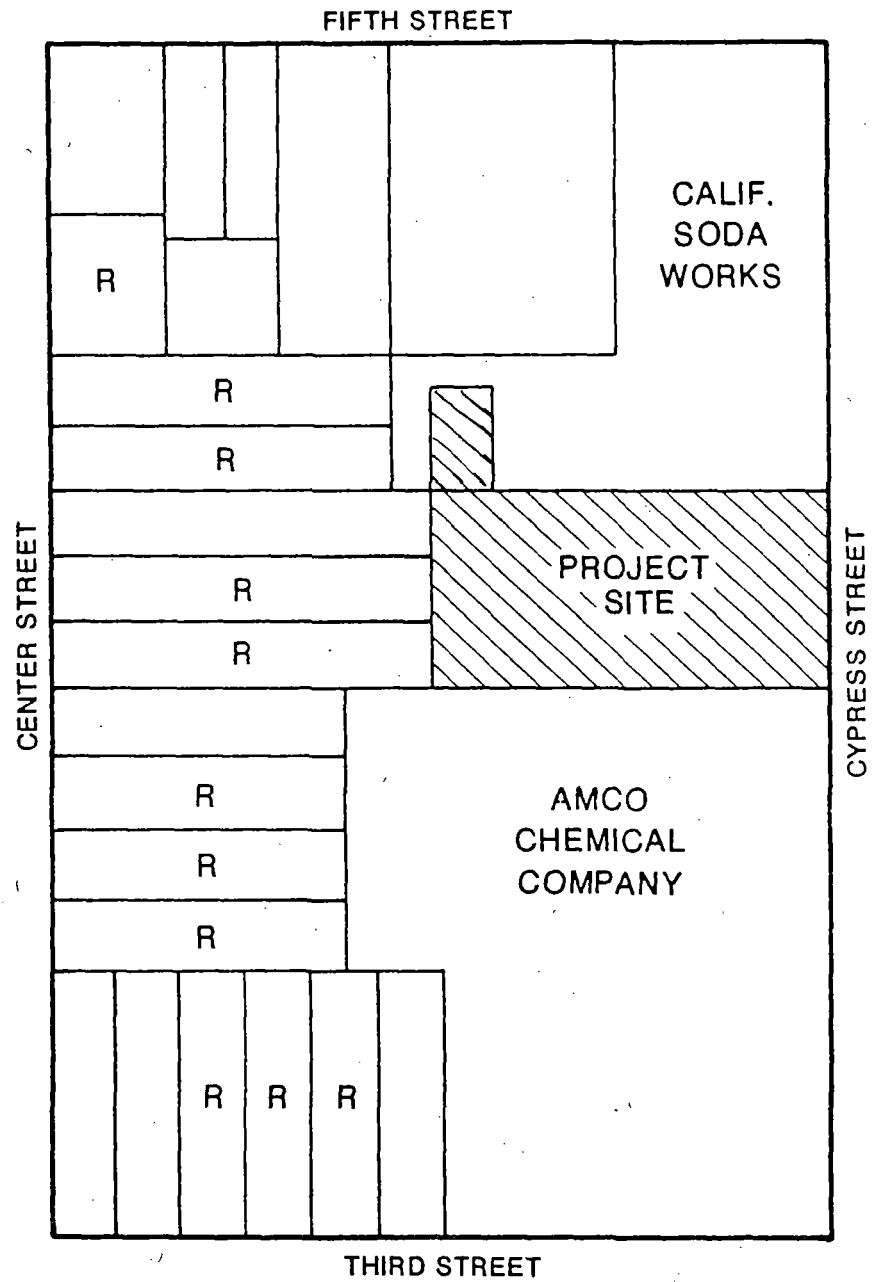
FIGURE 1



**SITE LOCATION MAP
349 CYPRESS STREET PROPERTY
OAKLAND, CALIFORNIA**

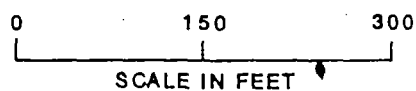
0 1/2 1
SCALE IN MILES





**BART
PROJECT SITE MAP
349 CYPRESS STREET
OAKLAND, CALIFORNIA**

R - RESIDENTIAL PROPERTY



Bay Area Rapid Transit District
23 April 1987
Page 4

HISTORICAL SITE RESEARCH

Site history were researched employing fire insurance zonation maps published by the Sanborn Map Company. These maps are periodically updated to reflect changes in site use and thus fire insurance zonation. Dated copies of these maps were inspected at the Bancroft Library (University of California, Berkeley), the Oakland History Room located at the main branch of the Oakland Public Library, and at the Oakland City Planning/Zoning Department.

In 1901, the project area was principally used for residential purposes. Only one small business was located in the area, a sausage factory with a smoke house. At this time, Cypress Street terminated at Fifth Street and the area immediately south of the junction appeared to be an open field.

By 1912, Cypress Street was extended through to Third Street and businesses had been developed along the 300-block. The project site, designated as 341-347 Cypress Street on the Sanborn Maps, was occupied by the Buffalo Bottling Company, a bottler of beer. Vacant lots bordered the site to both the north and south along Cypress Street. Single- and multi-family residential properties bordered the site to the west, as they do presently. A Southern Pacific Transportation Company (SPTC) freight depot occupied the block to the east of the site, on the opposite side of Cypress Street.

The bottling company had vacated the 341-347 Cypress Street properties by 1930, leaving only empty warehouse facilities. The "Sal Soda Works", as designated on the Sanborn Map for this period, occupied the parcel immediately to the north of the project site. The parcels to the south, 321-335 Cypress Street, were occupied by the National Ice Cream Company.

Between 1930 and 1940 the project site was redeveloped as a beer depot and the southern bordering parcels had changed stewardship becoming the Sunset Supply Company, a dealer in bottles and rags. "Sal Soda Works" continued to occupy the parcel to the immediate north. The western half of the block continued to be used for residential purposes.

By 1951, the "Sal Soda Works" had expanded their operation to take-over the veneer and paneling facility on the corner of 3rd and Cypress Streets. This property became their soap powder manufacturing and warehouse facility. The beer depot had become a wholesale beer and wine operation with cold storage and warehouse facilities. The southern parcels were occupied by the Walter R. Cole and Company, a welding and tank works facility.

Nineteen sixty-four was the year the area began to develop its current character. The 341-347 Cypress Street properties became a vacant lot and Amco Chemical Company was in operation (properties bordering the site to the south). During this time the "Sal Soda Works" changed names becoming the California Soda Works. Marathon Delivery Service and Bay Area Shippers Association become occupants of the block to the east of Cypress Street.

Bay Area Rapid Transit District
23 April 1987
Page 5

Sometime between 1964 and 1972, the current occupant of the site, Alexander's Ragtime Auto Wreckers, set up operations.

According to the Oakland City Fire Prevention Bureau, no underground storage tanks (UST) are presently in use on the site. In fact, there are no recorded permits for UST for any parcel/business on the block (Figure 2). The only UST permit recorded at the bureau is for a tank located on the Marathon Delivery Service property, which is across Cypress Street to the east.

SITE CHARACTERIZATION

Figure 3 shows the locations of the initial ES site characterization activities. The sampling locations were selected after a careful inspection of the site on by Neal Siler of ES on 16 April 1987. Sampling location criteria was based on soil areas that displayed physical evidence of potential contamination (discoloration and/or odors).

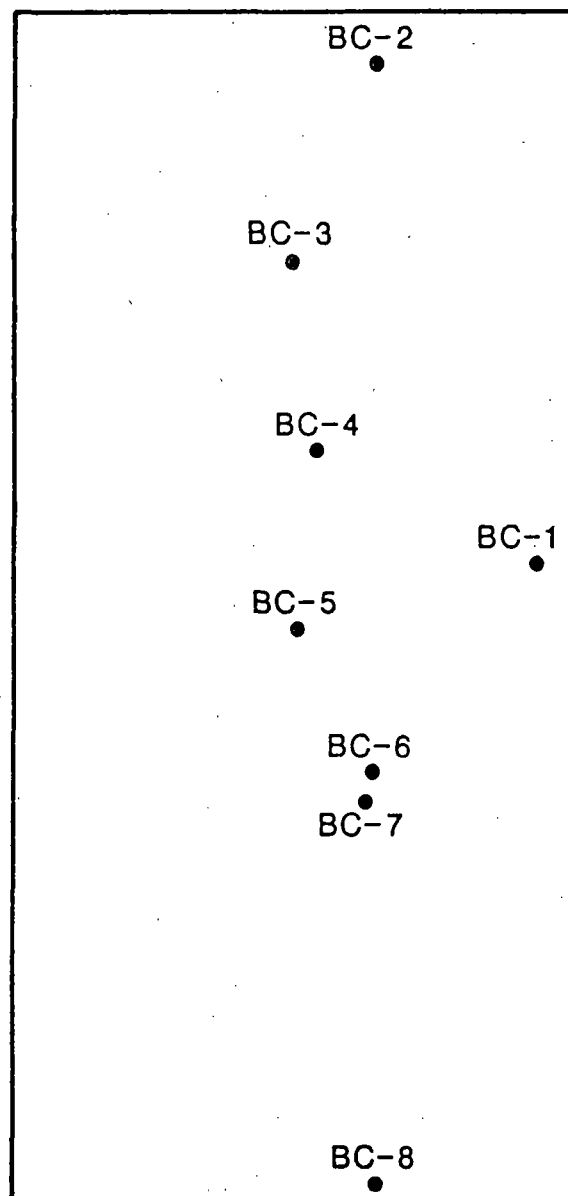
Site Inspection

For the most part, the site is covered with automobiles and automobile parts, especially the southern half of the property. A crane, located at a central position on the eastern portion of the site, is used to load/unload, dismantle, and transfer wrecked automobiles to various positions on the site. Certain areas are employed for the storage of different automobile parts. The northeastern corner of the property is used for the storage of engines and transmissions, to the west of this area is a portion of the property used for the storage of tires and wheels, directly south of the tire storage area is an area used for gasoline tank storage. The number and density of these parts obscured most surface soil areas from direct observation, but areas of open soil could be observed along the northwest portion of the parcel and along the Cypress Street or business entrance.

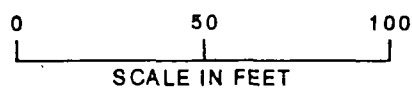
The open soil areas can be characterized as silty, sandy clays containing minor to abundant gravels. Fragments of safety glass and metal are ubiquitous, and the soil is generally discolored and has a mild to strong petroleum hydrocarbon odor.

Soil Sampling

On 16 April 1987, ES personnel collected eight surface soil samples at representative open soil locations. No samples were collected from soils directly beneath the stacked automobiles and automobile part areas. Samples were either collected with hand trowels or in mallet-driven brass tubes, depending on the analysis to be performed (heavy metals, petroleum hydrocarbons, volatile organic compounds). Soil Sampling protocol consisted of transferring approximately 100 to 500 grams of soil to the appropriate container, capping the containers with aluminum foil and non-reactive caps, refrigeration, and transportation to the ES Berkeley Laboratory for analysis.



**SOIL SAMPLING LOCATIONS
349 CYPRESS STREET PROPERTY
OAKLAND, CALIFORNIA**



Bay Area Rapid Transit District

23 April 1987

Page 7

Samples BC-1, BC-2, BC-3, BC-4, BC-5, and BC-6 were collected from discolored, malodorous gravelly soil areas along the northwestern portion of the property. Metals fragments were abundant in these samples. These samples, along with sample BC-8, collected from silty-sandy materials at the Cypress Street entrance, were analyzed for heavy metals associated with automobiles (cadmium, chromium, copper, iron, lead, tin, and zinc). Samples BC-6 and BC-7 were collected from an oil saturated soil, located between the tire and gasoline tank storage area, and were analyzed for petroleum hydrocarbons and volatile organic compounds (VOC), respectively.

ANALYTICAL RESULTS

All samples were analyzed at the ES Berkeley Laboratory, a State of California Certified Hazardous Waste Laboratory. Heavy metal analysis was performed using atomic absorption spectroscopy; gas chromatography/flame ionization detection (GC/FID) was employed for petroleum hydrocarbon analysis, and EPA Method 8240 was used to identify and quantify VOCs (chlorinated halocarbons and aromatic compounds). Table 1 summarizes the soil contaminants found in the samples along with their California State Total Threshold Limit Concentrations (TTLC). Total Threshold Limit Concentration is defined as the "concentration of a solubilized, extractable, and nonextractable bioaccumulative or persistent toxic substance which, if equalled or exceeded in a waste, renders the waste hazardous." (Title 22, California Administrative Code, Section 66206). The California Department of Health Services (DOHS) may determine that the TTLC for a given constituent can be exceeded and still be within their "action limits" if the environmental conditions at the site are deemed appropriate. Laboratory Analytical reports are contained in Appendix A. Chain of custody records are contained in Appendix B.

Metal Analysis

The only heavy metal constituents that exceed TTLC are cadmium (Cd) in sample BC-3 and lead in samples BC-1, BC-2, BC-3, BC-4, BC-5, and BC-8. Sample BC-3 had a Cd concentration of 232 mg/kg, more than double the TTLC value of 100 mg/kg as reported in Title 22, California Administrative Code, Section 66699. Cadmium forms a durable coating for iron and steel and because of this property is used for plating screws, nuts, and bolts. Lead concentrations ranged from 1,400 mg/kg to 3,800 mg/kg in the six metal analysis samples, which exceeded TTLC by 400 mg/kg to 2,800 mg/kg (Table 1). Lead is the primary active metal in automobile storage batteries.

The highest reported heavy metal concentrations are for iron which ranges from 15,000 mg/kg in sample BC-8 to 56,000 mg/kg in sample BC-3. As indicated in Table 1, there is no published TTLC value for iron, and according to Dr. Paul Williams, Chief Toxicologist for DOHS, even these high concentrations does not pose an immediate health or safety concern. But, if the high concentrations of iron reached groundwater, the California Regional Water Quality Control Board (RWQCB) could require remedial action.

TABLE 1

 SOIL SAMPLE ANALYSIS - 349 CYPRESS STREET PROPERTY
 OAKLAND, CALIFORNIA
 16 April 1987
 (All Concentrations reported in mg/kg)

Chemical Parameter	TTLC	Sample Identification							
		BC-1	BC-2	BC-3	BC-4	BC-5	BC-6	BC-7	BC-8
Heavy Metal Analysis									
Cadmium	100	15	11	232	15	15	NT	NT	9
Chromium	500	150	190	220	150	180	NT	NT	80
Copper	2,500	250	1,400	270	180	170	NT	NT	95
Iron	NA	35,000	47,000	56,000	40,000	49,000	NT	NT	15,000
Lead	1,000	2,100	2,500	3,800	1,900	2,400	NT	NT	1,400
Tin	NA	<500	<500	<500	<500	<500	NT	NT	<500
Zinc	5,000	4,900	950	1,500	1,400	1,300	NT	NT	3,100
GC/FID Analysis									
Petroleum Hydrocarbons	NA	NT	NT	NT	NT	NT	58,000	NT	NT
VOC Analysis ^a									
Benzene	NA	NT	NT	NT	NT	NT	NT	0.010	NT
Ethyl Benzene	NA	NT	NT	NT	NT	NT	NT	0.016	NT
Toluene	NA	NT	NT	NT	NT	NT	NT	0.058	NT
Total Xylenes	NA	NT	NT	NT	NT	NT	NT	0.140	NT

NA = Not Applicable.

TTLC not established at this time.

NT = Not Tested.

^a Only compounds detected are reported; a list of compounds analyzed by EPA Method 8240 is presented in Appendix A.

Bay Area Rapid Transit District
23 April 1987
Page 9

Total Petroleum Hydrocarbons

Sample BC-6 was analyzed for total petroleum hydrocarbons using GC/FID techniques with #2 diesel fuel as a standard. A concentration of 58,000 mg/kg was detected in this sample. At present, there are no formal DOHS standards for total petroleum hydrocarbons, and evaluation is carried out on a site by site basis considering such factors as unsaturated soil zone confinement, direct water infiltration, and beneficial use of groundwater in the affected area. However, DOHS uses 1,000 mg/kg as a concentration above which they will scrutinize site conditions. In addition, the RWQCB guidelines for leaking underground fuel tanks, uses the 1,000 mg/kg concentration as a minimum criteria for requiring contaminated soil removal. Thus, the high concentration of total petroleum hydrocarbons found in the sample could require action ranging from further site evaluation to excavation, removal, and legal disposal of contaminated soil.

Volatile Organic Compound Analysis

Sample BC-7, taken near the location of sample BC-6, was analyzed for VOCs employing EPA Method 8240. The four compounds identified included benzene (0.010 mg/kg), ethyl benzene (0.016 mg/kg), toluene (0.058 mg/kg), and total xylenes (0.140 mg/kg). The concentrations of three of these four components of gasoline fuels are very low indicating the volatility of the aromatic compounds. DOHS recommended "action levels" for these compounds in drinking water are 0.0007 mg/l (benzene), 0.01 mg/l (toluene), and 0.62 mg/l (total xylenes). Thus, the low concentrations reported in the surface soils do not pose a significant threat to health or safety.

CONCLUSIONS

The conclusions presented below are based on data collected and interpretations formulated in the body of this report. The conclusions are presented in subsections on: (1) historical site use(s) and (2) surface soil chemistry.

Historical Site Use(s)

- ° The project area has been one of mixed-use for the past 86 years, integrating small commercial, industrial, and residential entities. The project site has changed use from an open field, to a beer bottling facility, to a wholesale beer and wine distributor, to an auto dismantling facility in this time period.

Surface Soil Chemistry

- ° Heavy metal analysis of six soil samples indicated that only cadmium and lead concentrations were above Title 22, California Administrative Code TTLC values. Cadmium exceed TTLC in one sample (BC-3; 232 mg/kg) whereas lead exceeded TTLC in all six samples in concentrations ranging from 1,400 to 3,800 mg/kg.

Bay Area Rapid Transit District
23 April 1987
Page 10

- ° Iron was detected in concentrations exceeding 15,000 mg/kg, but does not pose a significant health or safety concern if ground-water quality is not compromised.
- ° Total petroleum hydrocarbons were detected in sample BC-6 at a concentration of 58,000 mg/kg. This value is above the DOHS regulatory agency action limit of 1,000 mg/kg.
- ° Benzene (0.010 mg/kg), ethyl benzene (0.016 mg/kg), toluene (0.058 mg/kg), and total xylenes (0.140 mg/kg) were detected in sample BC-7. These low concentrations do not warrant regulatory agency concern.

RECOMMENDATIONS

- ° Determine the lateral and vertical extent of those contaminants that exceed regulatory agency TTLC or "action limits" (cadmium, lead, and total petroleum hydrocarbons);
- ° Based on this further characterization, recommend the volume of materials needed to be excavated, removed, and disposed by a State of California licensed hazardous waste hauler.

It has been a pleasure to provide BART with these requested services. Should you have any questions concerning this submittal, please call.

Very truly yours,



Neal E. Siler
Project Geologist



Richard S. Makdisi, Manager
Hazardous Waste Mgmt. Dept.

RSM/NES/krm/322.15

cc: T. G. Cole

APPENDIX A

ANALYTICAL LABORATORY REPORTS

ES

ENGINEERING-SCIENCE, INC.

RESEARCH AND DEVELOPMENT
LABORATORY
600 BANCROFT WAY
BERKELEY, CALIFORNIA 94710
(415) 841-7353

LABORATORY ANALYSIS REPORT

Page 1 of 2

Job No.: 5900

P.O. No.: --

Date Received: 4/16/87

Date Reported: 4/17/87

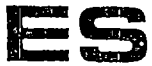
For: ES-Berkeley/BART
Address:

Attn:

Lab No.	871353	871354	871355	871356
Source of Sample	BC-1	BC-2	BC-3	BC-4
Date Collected:	4/16/87	4/16/87	4/16/87	4/16/87
Time Collected:	9:35	9:40	9:45	9:55

Analysis	Units	ANALYTICAL RESULTS			
Cadmium	mg/kg	15	11	232	15
Chromium	mg/kg	150	190	220	150
Copper	mg/kg	250	1,400	270	100
Iron	mg/kg	35,000	47,000	56,000	40,000
Lead	mg/kg	2,100	2,500	3,800	1,900
Tin	mg/kg	<500	<500	<500	<500
Zinc	mg/kg	4,900	950	1,500	1,400

Jane H. Morris
Laboratory Supervisor



ENGINEERING-SCIENCE, INC.

RESEARCH AND DEVELOPMENT
LABORATORY
600 BANCROFT WAY
BERKELEY, CALIFORNIA 94710
(415) 341-7353

LABORATORY ANALYSIS REPORT

Page 2 of 2

Job No.: 5900

P.O. No.: --

Date Received: 4/16/87

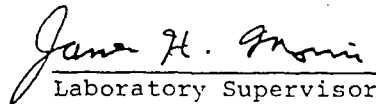
Date Reported: 4/17/87

For: ES-Berkeley/BART
Address:

Attn:

Lab No.	871357	871358	871359	871360
Source of Sample	BC-5	BC-6	BC-7	BC-8
Date Collected:	4/16/87	4/16/87	4/16/87	4/16/87
Time Collected:	9:59	10:07	10:15	10:30

Analysis	Units	ANALYTICAL RESULTS			
Cadmium	mg/kg	15	--	--	9
Chromium	mg/kg	180	--	--	20
Copper	mg/kg	170	--	--	95
Iron	mg/kg	49,000	--	--	15,000
Lead	mg/kg	2,400	--	--	1,400
Tin	mg/kg	<500	--	--	<500
Zinc	mg/kg	1,300	--	--	3,100


Laboratory Supervisor

Engineering-Science

ANALYTICAL RESULTS SUMMARY
FID SCAN

Page 1 of 1

Job No.: 5900

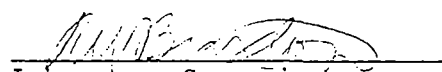
P.O. No.:

For: ES-Berkeley/Bart
Address:

Attn: Rick Makdisi

Lab No.	871358
Source of Sample	BC-6
Date Collected	4/16/87
Date Received	4/16/87
Date Analyzed	4/16/87
Date Reported	4/17/87

Analysis	Units	Detection Limits	ANALYTICAL RESULTS
Petroleum hydrocarbons	mg/g	10	58


Laboratory Supervisor

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - SW 8240
Matrix: Soil

Date Received: April 16, 1987
Date Reported: April 17, 1987

P.O. No.:
Job No.: 5900

For: ES:Berkeley/BART
Address: 600 Bancroft Way
Berkeley, California 94710

Attn: Mr. Rick Makdisi

Lab Number: 871359
Sample No.: BC-7
Date Sampled: 4/16/87
Time Sampled: 1015
Date Analyzed: 4-16-87

Compound	Detection ug/kg	Analytical ug/kg
Chloromethane	10	ND
Bromomethane	10	ND
Vinyl Chloride	10	ND
Chloroethane	10	ND
Dichloromethane	3	ND
Trichlorofluoromethane	10	ND
1,1-Dichloroethene	3	ND
1,1-Dichloroethane	5	ND
trans-1,2-Dichloroethene	2	ND
Chloroform	2	ND
1,2-Dichloroethane	3	ND
1,1,1-Trichloroethane	4	ND
Carbon Tetrachloride	3	ND
Bromodichloromethane	2	ND
1,2-Dichloropropane	5	ND
trans-1,3-Dichloropropene	5	ND
Trichloroethene	2	ND
Benzene	4	10
Dibromochloromethane	3	ND
1,1,2-Trichloroethane	5	ND
cis-1,3-Dichloropropene	10	ND
2-Chloroethyl vinyl ether	10	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	7	ND
Tetrachloroethene	4	ND
Toluene	6	58
Chlorobenzene	6	ND
Ethylbenzene	7	16
1,2-Dichlorobenzene	10	ND
1,3- & 1,4-Dichlorobenzene	10	ND
Total Xylenes	10	140

Lisa A. Krueger
Analyst

Paula L. Kelly
Laboratory Supervisor

APPENDIX B

CHAIN OF CUSTODY RECORDS

CHAIN OF CUSTODY RECORD

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

GLASS UNQUITOUS!! RG CAREFUL!!